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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/015,016 | 12/10/2001 | Tomoharu Horio | 10921.106US01 | 2058 |

23552 7590 06/12/2003

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EXAMINER

PETKOVSEK, DANIEL J

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 06/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,016

Applicant(s)

HORIO, TOMOHARU

Examiner

Daniel J Petkovsek

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 10, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: Brian Healy

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claim 8 is objected to because of the following informalities: on line 16, "rein" should read "resin". Appropriate correction is required. Claim 8 is indicated as allowable if the change of this minor informality occurs. The relevant prior art does not teach or reasonably suggest the distinct method steps in which the etching of the conductive film, application of a gold foil, mounting groups of elements, shaping molding resin on the material board, and dividing the material board on each of the substrate areas.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art cited by Applicant in disclosure.

Cited Prior Art (Figs. 17-19, Applicant's admission) teaches all claimed elements of the current invention, lacking that the jumper pad is being partially or entirely spaced from an edge of the substrate. The cited Prior Art teaches an infrared data communications module comprising: a substrate for mounting an emitter, receiver, and IC chip; and a molded body formed of molding resin to cover and seal the components; with the surface of the substrate having at least one jumper pad formed by plating a conductive film with gold. Applicant states that the Prior Art is lacking since when the shield cover is placed over the communications module, the connecting portions may contact the shield case, causing a short-circuit of the module.

Clearly, from figure 18, the jumper pad of the Prior Art is spaced partially from an edge of the substrate. Space exists between the jumper pad and at least one edge of the substrate.

Furthermore, it would have been an obvious modification of the Prior Art, to space the jumper pad entirely from the side of the substrate if a short circuit occurred in certain situations. The Prior Art must function to create a data transmission of optical/electrical signals, and when the shield casing is placed/connected to the molded resin body, if short circuits occur, the entire device would not work. It is assumed that the Prior Art will function properly without short circuits.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. U.S.P. No. 6,548,328.

Sakamoto et al. U.S.P. No. 6,548,328 teaches (ABS, Fig. 1B, Fig. 27) a communications module comprising a substrate having a surface with a conductive foil in which communication

emitter elements are mounted on gold plated bonding pads. Sakamoto et al. '328 does not explicitly teach that the bonding pad is generally circular as view in plan. The limitation of the bonding pad being circular is a non-critical device limitation of the bonding pad. It is unclear on how this limitation would overcome Sakamoto et al. '328 as far as functionality or usefulness.

7. Claims 5-7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's cited Prior Art, and further in view of Kuhara et al. U.S.P. No. 6,530,698.

Cited Prior Art (Figs. 17-19, Applicant's admission) teaches all claimed elements of the current invention, lacking that the surface of the substrate is formed with a recess for enhancing a bond between the substrate and the molded body. The Prior Art teaches an infrared data communications module comprising: a substrate for mounting an emitter, receiver, and IC chip, and a molded body formed of molding resin to cover and seal the components; with the surface of the substrate having at least one jumper pad formed by plating a conductive film with gold. The Prior Art does not explicitly teach a recess in the surface of the substrate to enhance bonding of the molded resin protection.

Kuhara et al. '698 teaches (Fig. 4) a recess formed in the substrate of a communications module to allow for enhanced bonding of the molded resin 14 to the substrate 2. The recess in the substrate 2 is helps maintain the bond between the molded resin and the communications element.

Since the cited Prior Art and Kuhara et al. '698 are both from the same field of endeavor, the purpose of having a recess in a substrate for forming enhanced bonding structures (Kuhara et

al. '698) between a molded resin and a substrate would have been recognized in the pertinent Prior Art as cited.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art that forming a recess/slot/hole/etc. in a substrate in order to keep a molded resin protective covering from disengaging from the substrate, by the teachings of Kuhara et al. '698 and the cited Prior Art (or any other well-known data communications module that has the components listed in the preamble of claims 5). Regarding claim 9, the method is inherent from the teachings above, the forming of a recess in a substrate to enhance bond between a molded resin and a substrate.

Regarding claims 6 and 7, connection of a molding resin body to protect a communications module in which the recess is formed on different parts of the substrate, or in generally cylindrical shapes are obvious modifications to the connection of the molded resin to the substrate. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to enhance bonding by embedding the molding resin into the substrate at particular locations in the communications module, for the purpose of increasing bonding strength and durability of the module. Cylindrical recesses in the substrate are obvious ways to help contain and strengthen the molded resin's connectivity to the substrate.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to the state of the art of data communications modules using molding resin to protect and cover the emitter/receiver/IC components: PTO-892 references B,C, and E-I.

Art Unit: 2874

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (703) 305-6919.

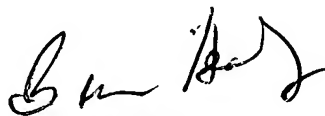
The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9321.



Daniel Petkovsek
June 6, 2003



Brian Healy
Primary Examiner